



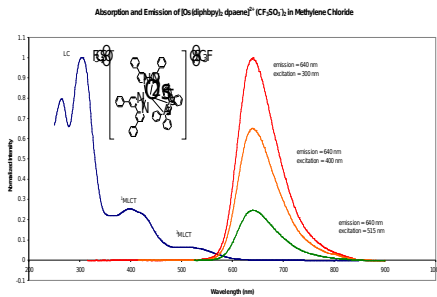
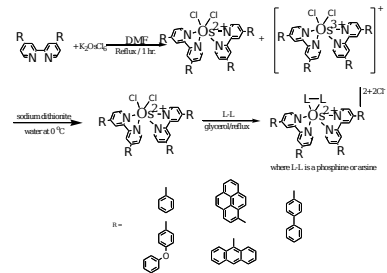
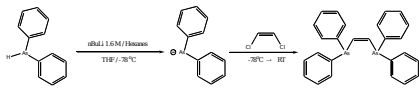
# Polymeric Smart Skin Materials

## University of Washington



MURI 01

10/10/01



### Objective:

- Development of next generation smart skin materials by combining new electroactive materials with nano- and mesostructured material device architectures. Materials and devices will be used as electromagnetic detectors and to alter EM signatures.
- Develop a new generation of smart skin sensors based on exploiting various aspects of receptor materials incorporated into photonic bandgap materials.

New Luminescent Sensor and Light Harvesting Materials Developed

### Approach:

- Develop new photoluminescence, electro-luminescence, electroabsorptive, multi-photon absorbing and electro-optic materials with significantly improved properties exploiting nanostructured (e.g., dendrimers) materials concepts.
- Use photonic bandgap, microresonator, and superprism material architectures to significantly enhance smart skin material

### Accomplishments:

- New, chemically inert, photochemically stable, light harvesting and sensor materials have been developed
- Light harvesting materials absorb all wavelengths below 600 nm and emits at 650 nm with  $\Phi = 0.45$
- New photonic bandgap, microresonator, and superprism materials have been developed. Quality factors as large as  $10^5$  have been demonstrated. The incorporation of active electro-optic